REMARKS

This amendment is in response to the Examiner's Office Action dated 11/17/2004. On the office action summary, the examiner has objected to the specification, but fails to provide additional details in the following pages of the office action. If the examiner still feels there are issues that need to be addressed with respect to the specification, applicant respectfully requests the examiner to detail such objections so that the applicant can respond with specificity. Minor amendments have been made to claims to correct inconsistencies without adding new matter. Reconsideration of this application is respectfully requested in view of the foregoing amendment and the remarks that follow.

STATUS OF CLAIMS

Claims 1-14 are pending.

Claims 1-14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Zheng et al. (USP 6611522).

OVERVIEW OF CLAIMED INVENTION

The presently claimed invention provides for a packet switching apparatus for sending a packet stored in a common memory to a plurality of paths having different bit rates, wherein the apparatus comprising storing means, enquiuing means, sending means, discarding means and free-address management means. The storing means stores a packet to be sent to at least one path in a free space of the common memory and the enqueuing means enqueues a pointer indicating the packet stored in the common memory to queues corresponding to paths to which the packet is scheduled to be sent. The sending means dequeues the pointer (enqueued by the

Page 8 of 13

enqueuing means) for each of the queues corresponding to the paths and sends the packet indicated by the dequeued pointer to the paths corresponding to the queues at the respective transmission bit rate thereof. The discarding means discards, on a queue basis, pointers from a head thereof in which it is determined that the number of pointers enqueued by said enqueuing means exceeds a predetermined threshold value. The free-address management means sets the free space of the common memory that is occupied by the packet to a busy state and changes the free space that is now in the busy state to a free state when the pointer indicating said packet is dequeued or discarded from all of the queues to which said packet is scheduled to be sent.

The present invention also provides for a multicasting method to send a packet stored in a common memory to a plurality of paths having different bit rates, wherein the method comprises the steps of: (a) storing a packet to be sent to at least one path in a free space of the common memory; (b) enqueuing a pointer indicating the packet stored in the common memory to queues corresponding to paths to which the packet is scheduled to be sent; (c) dequeuing the pointer enqueued for each of the queues corresponding to the paths and sending the packet indicated by the dequeued pointer to the paths corresponding to the queues at the respective transmission bit rate thereof; (d) discarding, on a queue basis, pointers from a head thereof in which it is determined that the number of pointers enqueued exceeds a predetermined threshold value; and (e) setting the free space of the common memory that is occupied by the packet to a busy state and changing the free space that is now in the busy state to a free space when the pointer indicating said packet is dequeued or discarded from all of the queues to which said packet is scheduled to be sent.

In the Claims

Minor amendments have been made to claims to correct inconsistencies without adding

new matter.

REJECTIONS UNDER 35 U.S.C. § 102(e)

Claims 1-14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Zheng et al.

(USP 6611522). To be properly rejected under 102(e), each and every element of the claims

must be disclosed in a single cited reference (i.e., the Zheng et al. reference). The applicant,

however, contends that the presently claimed invention cannot be anticipated in view of the

Zheng et al. reference.

Zheng et al. provides for a facility that provides asynchronous transfer mode (ATM) and

Internet protocol (IP) quality of service (QoS) features in a digital communication node. The

facility comprises a plurality of logic input ports and logic output ports, an ATM forwarding

means, an IP forwarding means, a QoS element, and a housing that contains both the ATM

forwarding means and the IP forwarding means. The plurality of logical input ports are adapted

for receiving input data flows from external data sources and the plurality of logical output ports

adapted for transmitting output data flows to a plurality of external data destinations, wherein the

input data flows and the output data flows include a plurality of ATM data cells and a plurality of

IP data packets. The ATM forwarding means forwards ATM data cells from one of the logical

input ports toward at least one of the logical output ports along a selected forwarding path and

the IP forwarding means forwards IP data packets from one of the logical input ports toward at

least one of the logical output ports along a selected forwarding path. The QoS elements

identifies one or more ATM QoS features for ATM data cells in the input data flows, identifies

Page 10 of 13

one or more IP QoS features for IP data packets in the input data flows, and schedules forwarding of the input data flows, based at least in part, on the identified one or more ATM QoS features and on the identified one or more IP QoS features.

With respect to independent claims 1 and 8, the examiner cites column 29, lines 56-64 as anticipating the limitation of discarding, on a queue basis, pointers from a head thereof in which it is determined that the number of enqueued pointers (enqueued by the enquiuing means) exceeds a predetermined threshold value. A closer reading merely suggests that the "queueing structure" 700 of Zheng et al.'s figure 34 merely suggests monitoring the amount of data stored in each queue. The citation further states that "if the amount of data in a queue exceeds a certain threshold, congestion control may be performed (e.g., PPD, EPD, and RED) to discard or mark traffic destined to the queue." Applicant respectfully contends that the examiner has erroneously equated this citation to the "discarding" limitations found in independent claims 1 and 8.

Specifically, applicants contend that the techniques described in the citations – namely partial packet discard (PPD), early packet discard (EPD), and random early detection (RED) – are well known packet-discard techniques that neither anticipate, nor render obvious, applicant's claimed invention. In the early packet discard (EPD) technique, for example, once the overflow is detected, the whole of the packet data unit (PDU) is discarded. In the partial packet discard (PPD) technique, once an overflow is detected, only cells constituting the remainder of the packet data unit (PDU) are discarded. In the random early detection (RED) technique, when the queues fill up, packets are discarded based on a probability computed from average queue occupancies. The above-mentioned techniques, as cited in the Zheng et al. reference, are representative of prior art discarding techniques (as shown in figure 13 of application-as-filed and accompanying parts

Page 11 of 13

of the specification). Conspicuously absent in the prior art techniques, the citations, and the entire Zheng et al. reference, is an explicit or implicit teaching for either *an element of an apparatus* (as per independent claim 1) for discarding, on a queue basis, pointers from a head thereof in which it is determined that the number of pointers enqueued exceeds a predetermined threshold value or a *step* (as per independent claim 8) of discarding, on a queue basis, pointers from a head thereof in which it is determined that the number of pointers enqueued exceeds a predetermined threshold value.

For a better understanding of the limitation of discarding, from the head of the multicast queue, when the number of address pointers (enqueued to a multicast queue) exceeds a threshold, the examiner is directed to figures 4-6 of the application-as-filed, along with the accompanying description.

With respect to independent claims 1 and 8, applicant, respectfully requests the examiner to withdraw the 35 U.S.C. §102(e) rejection as the examiner has failed to show each and every limitation of independent claims 1 and 8. Additionally, the above-presented arguments for independent claims 1 and 8 substantially apply to dependent claims 2-7 and 9-14, as they inherit all the limitations of the claim from which they depend. Hence, applicant respectfully requests the examiner to withdraw the 35 U.S.C. §102(e) rejection with respect to dependent claims 2-7 and 9-14
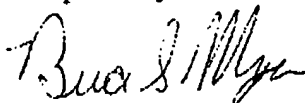
SUMMARY

As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicant's presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

This amendment is being filed with a petition for extension of time. The Commissioner is hereby authorized to charge the petition fee, as well as any deficiencies in the fees provided to Deposit Account No. 50-1290.

If it is felt that an interview would expedite prosecution of this application, please do not hesitate to contact applicant's representative at the below number.

Respectfully submitted,

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April 18, 2005

Page 13 of 13